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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,439	08/01/2001	Hideki Kato	110287	4747

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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 06/27/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,439

Applicant(s)

KATO ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11,453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7 and 8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). Z.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Amendments to claims 1 – 3, 5 and 6, filed on May 23, 2003, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants' as-filed disclosure does not provide support for "wherein the one dielectric film has a refractive index of three or higher, and the other dielectric film has a refractive index of less than **two**" [emphasis added]. I.e. only "different" or "less than three" appear to be supported by the as-filed disclosure.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 4, 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hamada (U.S. Patent App. No. 2001/0054681 A1).

Regarding claims 1, 4 and 7, Hamada discloses a optical isolators (*Paragraphs 0002 – 0004*) formed from an optical body comprising two dielectric multilayered films (*Figure 23, elements 106c and 107c*), wherein the two dielectric multilayered films comprise two types of dielectric films alternatively laminated with each other regular in thickness (*elements 131 and 132 and Paragraphs 0205*), and wherein the one dielectric film has a refractive index of three or higher, and the other dielectric film has a refractive index of less than two (*Paragraph 0205*).

Regarding the preamble limitation “a magneto-optical body” and the limitation “a magnetic film provided between the two dielectric multilayered films”, Hamada discloses using both electro-optical films, e.g. Pockels crystals such as the LiNbO₃ film used as element 103 in Figure 23 (*Paragraph 0137*), and magneto-optical films, i.e. “a magnetic film” (*Paragraph 0183*), interchangeably depending on whether a voltage or magnetic sensing material was needed (*6th and 12th embodiments; Figures 12 and 19*).

Therefore, the Examiner deems that Hamada discloses embodiments meeting applicants' claimed structural limitations, since Hamada discloses that one can use either Pockels crystal films or magneto-optic films in optical bodies, depending on whether a voltage or magnetic force was being used.

Regarding claims 3 and 8, Hamada discloses materials for the low and high refractive index films meeting applicants' claimed limitations (*Paragraph 0205*).

Claim Rejections - 35 USC § 103

7. Claims 1, 3, 4 and 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. ('643 A1) in view of Li.

Regarding claim 1, Inoue et al. disclose a magneto-optical body comprising two dielectric multilayered films (*Figure 13, elements 13*) and a magnetic film (*element 14*) provided between the two dielectric multilayered films, wherein the two dielectric multilayered films comprise two types of dielectric films alternatively laminated with each other (*elements 22 and 23*) regular in thickness (*Paragraphs 0011 and 0090*).

Inoue et al. fail to disclose dielectric layers meeting applicants' claimed refractive index limitations.

However, Li teach optical isolators wherein a stacked film of high and low refractive index material are used in order to produce a thin film polarizing device which employs frustrated total internal reflection and interference to transmit s-polarized light and to reflect p-polarized light, thereby reducing insertion loss and allowing the devices to be polarization independent (*Table 1; Figure 1; col. 3, lines 58 – 67; col. 4, lines 44 –*

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46; col. 5, lines 63 – 66 and col. 12, lines 43 – 48). Li further discloses stacked “high and low” refractive index films meeting applicants’ claimed limitations (*where Si has a refractive index of ~3.49 and SiO₂ has a refractive index of ~1.59*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant’s invention to modify the device of Inoue et al. to use a stacked film of high and low refractive index material as taught by Li in order to produce a thin film polarizing device which employs frustrated total internal reflection and interference to transmit s-polarized light and to reflect p-polarized light, thereby reducing insertion loss and allowing the devices to be polarization independent.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of Li as applied above, and further in view of the general knowledge of the prior art, as exemplified by Yamada (U.S. Patent No. 6,448,850 B1) and Hamada (‘681 A1).

Inoue et al. In view of Li is relied upon as described above.

Neither Inoue et al. nor Li disclose replacing Si with Ge.

However, the Examiner deems that Si and Ge are known art-recognized equivalents in terms of high refractive index dielectric materials, as evidenced by Hamada (*Paragraph 0205: “For the high-refractive-index layer 131,...Ge, Si and other materials having a refractive index of approximately 3.4 to 3.6, for example) can be used’*) and Yamada (*col. 4, lines 4 – 17: “the dielectric waveguide is a material of high*

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refractive index having transparency in an operating wave length region. The dielectric waveguide ... may consist of IV group semiconductors such as Si and Ge ...").

Substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. In the instant case, Si and Ge are equivalents in the field of high refractive index dielectric materials, as evidenced by the above cited art. *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

Response to Arguments

9. The rejection of claims 1 - 8 under 35 U.S.C § 102(b) or 103(a) – Inoue et al., either alone or in combination with Li

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. In so far as they apply to the rejections of record, applicants argue that Li "does not disclose or suggest the motivation to combine them in the same arrangement or to combine them with Inoue because neither Inoue nor Li disclose or suggest providing the largest difference possible in refractive index". The Examiner respectfully disagrees.

An invention may be obvious if the prior art has different reasons for doing what the applicant has done. "It has long been held that a rejection under 35 USC 103 based upon a combination of references is not deficient solely because the references are combined based upon a reason or technical consideration which is different from that which resulted in the claimed invention." *Ex parte Raychem Corp.* 17 USPQ 2d 1417,

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1424 (BPAI 1990). Cites *In re Kronig* 190 USPQ 425 (CCPA 1976); *In re Gershon* 152 USPQ 602 (CCPA 1967). In the instant case, Inoue et al. teach a general structure meeting applicants' claimed limitations and Li merely provides motivation to use "a stack of alternate low and high refractive index layers" (*col. 5, lines 64 – 66*) such that they necessarily possess refractive index values meeting applicants' claimed limitations, i.e. Si/SiO₂ (*Table 1*).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Applicants' amendment resulted in embodiments not previously considered (i.e. "one dielectric film has a refractive index of three or higher, and the other dielectric film

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has a refractive index of less than two") which necessitated the new grounds of rejection, and hence the finality of this action.


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



KMB
June 21, 2003


Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700